

立体の対角線の長さ

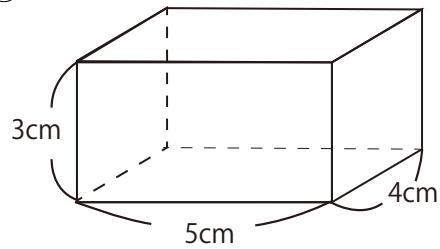
NO 1

名前

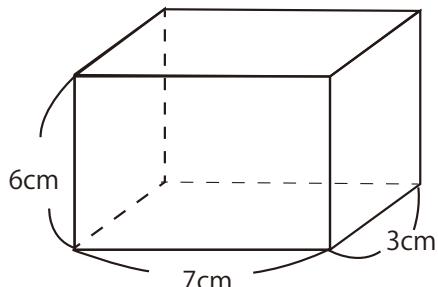
/4 点

1 次の直方体、立方体の対角線の長さを求めなさい。

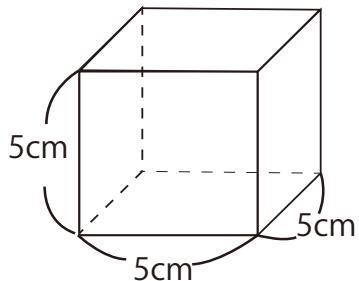
①



②



③



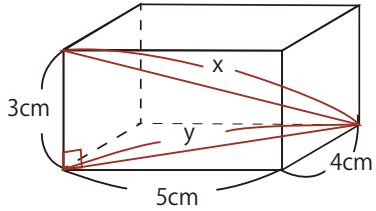
2

対角線の長さが $6\sqrt{3}$ である立方体の一辺の長さを求めなさい。

解答

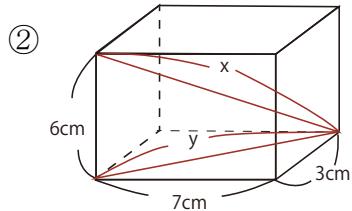
1

① 図のように底面の対角線の長さをy、直方体の対角線の長さをxとすると



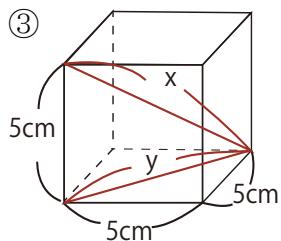
$$\begin{aligned} y^2 &= 5^2 + 4^2 = 41 & x^2 &= 3^2 + y^2 \\ & & &= 3^2 + 41 = 50 \\ & & x &= 5\sqrt{2} \text{ cm} \end{aligned}$$

$$\text{別}) \quad x^2 = 5^2 + 4^2 + 3^2 = 50 \quad x = 5\sqrt{2} \text{ cm}$$



$$\begin{aligned} y^2 &= 7^2 + 3^2 = 58 & x^2 &= 6^2 + y^2 \\ & & &= 6^2 + 58 = 94 \\ & & x &= \sqrt{94} \text{ cm} \end{aligned}$$

$$\text{別}) \quad x^2 = 7^2 + 3^2 + 6^2 = 94 \quad x = \sqrt{94} \text{ cm}$$



$$\begin{aligned} y^2 &= 5^2 + 5^2 = 50 & x^2 &= 5^2 + y^2 \\ & & &= 5^2 + 50 = 75 \\ & & x &= 5\sqrt{3} \text{ cm} \end{aligned}$$

$$\text{別}) \quad x^2 = 5^2 + 5^2 + 5^2 = 75 \quad x = 5\sqrt{3} \text{ cm}$$

2

一边の長さをxとする

$$\begin{aligned} x^2 + x^2 + x^2 &= (6\sqrt{3})^2 \\ 3x^2 &= 108 \\ x^2 &= 36 \quad x = 6 \text{ cm} \end{aligned}$$